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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/783,323

02/20/2004

Michael W. Kruger

20250-2

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05/08/2009

WOODARD, EMHARDT, MORIARTY, MCNETT & HENRY LLP  
111 MONUMENT CIRCLE, SUITE 3700  
INDIANAPOLIS, IN 46204-5137

EXAMINER

STERRETT, JONATHAN G

ART UNIT

PAPER NUMBER

3623

MAIL DATE

DELIVERY MODE

05/08/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/783,323	<b>Applicant(s)</b> KRUGER ET AL.	
	<b>Examiner</b> JONATHAN G. STERRETT	<b>Art Unit</b> 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 47-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 47-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Summary*

1. This **Final Rejection** is responsive to 9 January 2009. Currently **Claims 47-80** are pending in the application.

### *Response to Amendments*

2. The claim objections are withdrawn. The 35 USC 101 rejections of **Claims 1-46** are withdrawn in response to the cancellation of Claims 1-46.

### *Response to Arguments*

3. The applicant's arguments have been fully considered but are not persuasive
4. The applicant argues that Swait fails to teach removing bias.

The examiner respectfully disagrees.

The examiner notes that the applicant has not invoked lexicography to set forth a special meaning for the term bias.

Wordnet.princeton.edu defines bias to be **a partiality that prevents objective consideration**

The examiner thus considers that bias in data is any characteristic of the data that inhibits its objectivity. Sources of bias then would include missing data, data that suggests correlations that are not there (as suggested in Swait on page 444 column 1

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para 2 – here correlation between price and promotion data is discussed as a type of bias).

The examiner notes that Swait discusses two different types of data, scanner panel or Revealed Preference (RP) data and discrete choice, or Stated Preference (SP) data.

Swait notes the removal of bias as an advantage in combining scanner panel data and discrete choice data on page 443 column 2. Swait notes that his method combines two different types of data sets to improve the quality over either data set, i.e. Swait notes that there are deficiencies in both types of data sets (scanner panel and discrete choice) that can be mitigated by combination. This combination removes bias because it eliminates the data deficiencies in both sets. For example, on page 443 column 1 top, Swait notes the "data limitations" in the data. The removal or mitigation of these limitations, according to a broadest reasonable interpretation, is the removal of bias.

Qian is relied upon for using a weighted average approach in removing bias. While the applicant pulls a statement out of context within Qian that says "our estimator is biased", the passage this statement is pulled from goes to lengths to explain that it is not just a simple matter of removing bias from a data sample – doing so results in error popping up elsewhere. Specifically Qian says:

## **1. Weights, Problems in Weighting, and Adjustments**

This paper develops a minimum mean square error (MSE) estimator of the population mean in the context of stratified simple random sampling. Like the unbiased estimator, our estimator is a weighted average of the sample means for the strata; unlike the classical estimator, our estimator is biased. The justification for using a biased estimator is that it has smaller mean square error than the unbiased estimator and it has only a relatively small bias.

Weighting is usually used to obtain unbiasedness. The cost of bias reduction, however, is often the inflation of variance. Therefore, it has long been common practice to restrict the variability of the weights to prevent variance from becoming excessive, even though the adjustment of the weights introduces bias into the estimators (Kish 1990).

So when Qian says "our estimator is biased", he is indicating that he is striking a tradeoff between total bias elimination and variance. I.e. "The justification for using a biased estimator is that it has smaller mean square error than the unbiased estimator and it has only a relatively small bias". Qian goes on to say that weights are used to remove bias (i.e. obtain "unbiasedness"). Thus Qian is striking a tradeoff between removing bias using weights and minimizing introducing other errors into the data sample.

The examiner notes that the applicant suggests that the mathematical complexity of Qian is suggestive of a level of skill beyond what would be ordinary. The elements of Qian that the examiner is relying on, that of using weights to reduce bias, is not even the main thrust of Qian's article. In fact the above excerpt shows that this was known about in the art at least as early as 1990 (Qian notes the practice of restricting weights "has long been common practice" from which the examiner infers that using weights period is a common practice. Qian's main thrust is balancing weighting to remove bias was minimizing the introduction of other error.

The examiner would also point out that both the Swait article and the Qian article appeared in journals. Qian's article appeared in ***Proceedings of the American Statistical Association***. Swait's article appeared in ***Marketing Science***. both of these articles are indicative of ordinary skill in the art of the invention.

The applicant argues that the cited references fail to teach comparing the two data sources using a common time dimension.

The examiner respectfully disagrees.

The applicant does not realize how broad this limitation is. Swait teaches comparing data across a common time dimension in that the two different data sets span the time period 1997 -2000. Thus the data is compared using a common time dimension. "A common time dimension" is incredibly broad. A person of ordinary skill in the art would recognize that data from a period spanning several years would form a comparison based on a common time comparison, as is taught by Swait.

The applicant argues that the examiner has engaged in hindsight in rejecting the claims.

The examiner respectfully disagrees.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The remainder of the arguments on page 14 regarding Claims 49, 50, 51, 52, 55, 57, 58, 68 and 69 fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-80** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Swait**, Joffre; Andrews, Rick L; "Enriching Scannel Panel Models with Choice Experiments", Fall 2003, Marketing Science, 22, 4; ABI/INFORM Global. Pp.442-460, (hereinafter **Swait**) in view of **Qian**, Jiahe; Spencer, Bruce D; "Optimally Weighted Means in Stratified Sampling", 1994, amstat.org, pp.863-866, (retrieved from the web at:[http://www.amstat.org/sections/srms/proceedings/papers/1994\\_149.pdf](http://www.amstat.org/sections/srms/proceedings/papers/1994_149.pdf)) (hereinafter **Qian**)

Regarding **Claim 47**, Swait teaches:

**using retail data from at least two data sources, using product identifier and attribute categorizations, and using a plurality of factor calculations;**

page 447 column 1, scanner data; page 451 column 1, SP survey data was obtained; page 447 column 2, product identifier and attribute categorizations; page 452 column 1, model definitions comprises a plurality of factor calculations.

**wherein the at least two data sources includes a data source that is more accurate than a second data source; and**



page 442 introduction (scanner panel data versus other data sources for data enrichment) also note page 457 Table 4 - the scanner panel data is more accurate than the SP data in prediction)

**identifying a plurality of overlapping attribute segments to use for comparing the at least two data sources,**

Table 2 page 451, attributes which overlap between the Scanner Panel Data and the SP data;

**compare a plurality of overlapping attribute segments to calculate a factor for each of the overlapping attribute segments, and use the factors to update a first group of values in the second data source to reduce bias.**

Table 3 pages 454-456; Table 4 page 457; Swait teaches calculating a utility factor based on a comparison of the overlapping attribute segments between the scanner data and the SP data. This utility factor is used to update (i.e. data enrichment) of the scanner panel variables to reduce bias (i.e. in Table 4, the Joint data provides a greater accuracy of prediction than the SP data (i.e. the second data source).

Swait does not explicitly teach using at least one server and business logic (i.e. a computer program) and a database to perform the limitations regarding storing, identifying and retrieving. However, Official Notice is taken that using a server and database to perform numerical calculations is old and well known in the art as making method steps faster and more efficient. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Swait to include

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performing the method steps using a server, business logic and a database because it would have provided a way to make the method steps faster and more efficient.

While Swait teaches that scanner data is more accurate than the experimental panel data in their experiment, Swait is focused on correcting the scanner panel data using a probability utility model. Swait notes that because of its completeness, scanner panel data (i.e. data from a store barcode scanner) contains a richer set of information capturing the behavioral dynamics of the purchase decision (page 442 under introduction). Swait notes that the idea of data enrichment as applied to scanner panel data is old and well known in the art using various techniques (page 443 column 1 para 2).

Swait, however, does not teach using a weighted approach to remove bias in the scanner panel data.

Qian teaches the idea of using a weighted average approach (see page 863 column 1,  $N_{sub\ h} \text{ divided by } N$  is a weighted average using volumes) to remove bias in a strata of data using correction factors (page 863 column 1 under "1."). Here Qian teaches that in two different data sets (i.e. a population and a sample) that a weighted approach may be used to correct for bias in the population.

Since Swait teaches scanner panel data and his own SP data (i.e. a population sample and subset respectively), one of ordinary skill in the art at the time of the invention would have modified Swait using the weighted average approach of Qian to realize a predictable result through applying a weighted average approach to remove bias in the scanner panel data. Swait suggests the benefits in accuracy to be realized through data enrichment and thus modifying Swait achieves a predictable result in the removing of bias as taught by Qian.

Regarding **Claim 48**, Swait teaches:

**The system of claim 47, wherein the one or more servers are further operable to use the factors to update a second group of values in the second data source to reduce incompleteness.**

Page 447 Table 3 shows how the factors are used to update a second group of values in the second data (i.e. the SP panel factors) to reduce incompleteness (i.e. since for example, “wrinkle reducer” is omitted from the scanner panel data).

Regarding **Claim 49**, Swait teaches:

**49. (Original) The system of claim 47, wherein the one or more servers are further operable to calculate the factor for each overlapping attribute segment by dividing a first data source volume amount by a corresponding second data source volume amount.**

Page 452 equations 4 and 5 show the calculation of factors where the sum of the purchase occasions (i.e. a volume amount) is used in the denominator.

Additionally, Qian teaches removing bias using a weighted average approach based on numbers of observations (i.e. a total “volume”) and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Swait to include calculating a bias removal using a weighted average approach using volumes (i.e. to divide the first data source amount by a second data sourced amount) because it would have provided a predictable result in adjusting the scanner panel data using a weighted average approach.

Regarding **Claim 50**, Swait teaches:

**50. (Original) The system of claim 47, wherein the one or more servers are further operable apply the factor for each attribute segment to the second data source by multiplying each of a plurality of second data source volume amounts by the factor for the corresponding attribute segment.**

Page 453 column 2, the joint model uses a combination of coefficients (i.e. factors) that are used to update the second data source’s coefficients

Regarding **Claim 51**, Swait teaches:

**51. (Original) The system of claim 47, wherein the one or more servers are further operable to only calculate the factors for each attribute that is determined to be relevant.**

Page 447 Table 1, the attributes listed have been determined to be relevant for the experiment.

Regarding **Claim 52**, Swait teaches:

**52. (Original) The system of claim 47, wherein the one or more servers are further operable to only calculate the factors for each attribute segment that is determined to be significant.**

Page 447 Table 1, the attributes listed have been determined to be significant for the experiment.

**Claim 53** recites similar limitations to those addressed by the rejection of **Claim 47** above, and is therefore rejected under the same rationale.

Regarding **Claim 52**, Swait teaches

**54. (Original) The system of claim 47, wherein the one or more servers are further operable to apply at least one of the factors to the second data source to correct incompleteness.**

Page 447 Table 3 shows how the factors are used to update a second group of values in the second data (i.e. the SP panel factors) to reduce incompleteness (i.e. since for example, “wrinkle reducer” is omitted from the scanner panel data).

Regarding **Claims 55 and 57**, Swait teaches

**The system of claim 54, wherein the one or more servers are further operable to calculate a blended factor when at least two measures are available for a same factor, said blended factor being used to reduce bias in the second data source.**

Page 453 column 1 para 3, a blended factor for the combined equation is calculated from both the scanner panel data and the SP data. This blended factor is used to reduce bias in the SP data.

Regarding **Claims 56 and 58**, Swait teaches

**56. (Original) The system of claim 55, wherein the one or more servers are further operable to calculate the blended factor by giving the more accurate data source a higher relative weight and by giving the less accurate data source a lower relative weight.**

Page 453 column 1 para 3, page 457 table 4 – Swait teaches combining factors using a weighted average. Swait teaches that one of the data sets is more accurate than the other in forming a predictive model regarding choice utility. While Swait teaches weighted averages in combining the factors and Swait teaches one dataset is

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more accurate than the other (table 4), Swait does not explicitly teach weighting the more accurate data set in combining the factors. However, Official Notice is taken that it is old and well known in the art to weight data that is known to be more accurate in combining data.

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Swait and Qian regarding combining data using a weighted average to weight the more accurate data relatively higher, because it would have provided a predictable result in the combination of the data.

Regarding **Claims 59 and 60** Swait teaches analyzing and correcting data and teaches viewing corrected data in a multidimensional format but does not teach users stations and displays with a graphical user interface that allows a user to administer a plurality of settings for analyzing and correcting the data sources (as per Claim 59) and to view the corrected data in a multidimensional format as per Claim 60.

However, Official Notice is taken that using a user station with a graphical user interface that allows a user to administer a plurality of settings is old and well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the teachings of Qian and Swait to include providing a user station with a graphical user interface that allows a user to administer a plurality of settings because it would have provided a predictable result in performing the combined teachings of Swait and Qian.

**Claims 1-47 and 61-80** recite similar limitations to those addressed above for **Claims 47-60**, and thus are rejected according to a similar rationale.

**Regarding Claims 7-19, 31-32, 44-46, 67-73, 75**, the data claimed does not patentably distinguish the invention over the cited prior art, i.e., the recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see *In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP ' 2106

Furthermore regarding **Claims 63 and 64**, Swait and Qian do not recite the use of removable memory devices including a disk, however these devices and their use is old and well known in the art (Official Notice) and would have been obvious to one of ordinary skill by providing a predictable result in combination with Swait and Qian by providing for the storage and retrieval of the data used in the method steps taught by Swait and Qian.

Furthermore regarding **Claim 65**, Swait and Qian do not teach providing their method by carrying their data and logic encoded in signals over a network, however Official Notice is again taken that using a computer network to carry one or more signals



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encoding the logic (i.e. software) to perform the method steps of Swait and Qian is old and well known in the art and would have been obvious to one of ordinary skill by providing a predictable result in combination with Swait and Qian by providing a computer network carrying one or more signals encoding the logic to perform the method steps taught by Swait and Qian.

Furthermore regarding **Claims 21 and 74**, Swait teaches performing the method multiple times to improve the accuracy (page 453 column 1 para 2; models 1 through 5).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Van Doren can be reached on 571-272-6737. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 5-7-09

/Jonathan G. Sterrett/

Primary Examiner, Art Unit 3623

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